F·A·A·M facility for airborne atmospheric measurements

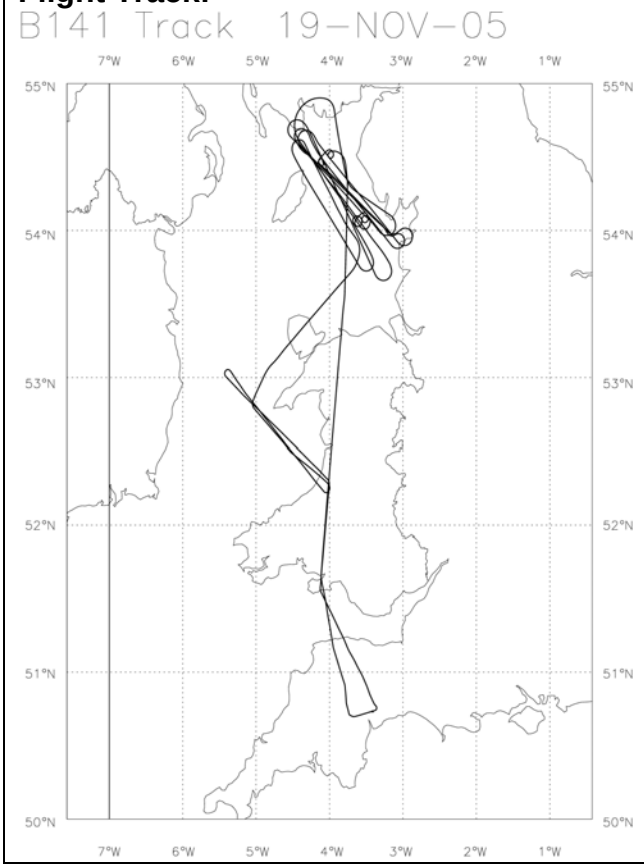
FLIGHT FOLDER

Flight No.:	B141
Date:	19 Nov 2005
Take Off	11:06:21
Landing:	16:04:46
Flight Time	4h58m29

Campaign: Cirrus
Operating Area: Irish Sea

POB	Position	Name	Institute
1	Captain	Alan Roberts	Directflight
2	Co-pilot	Steve Ball	FAAM
3	3rd Pilot	Ian Ramsay-Rae	Directflight
4	CCM	Sue Angold	Directflight
5	Mission Scientist	Clare Lee	Met Office
6	Flight Manager	Maureen Smith	FAAM
7	Dropsondes/ CCM2	Stuart Heath	FAAM
8	Cloud Physics	Martyn Pickering	Met Office
9	MARRS/DEMOS	Ian Rule	Met Office
10	MARRS/DEMOS Training	James Bowles	Met Office
11	ARIES	Stuart Rogers	Met Office
12	SWS	Martin Glew	Met Office
13	ADA / CPI	Ian Crawford	Manchester University
14	Mission Scientist 2	Jon Taylor	Met Office
15	TAFTS	Jon Murray	Imperial College London
16	Satellite Applications	Brett Candy	Met Office
17			
18			

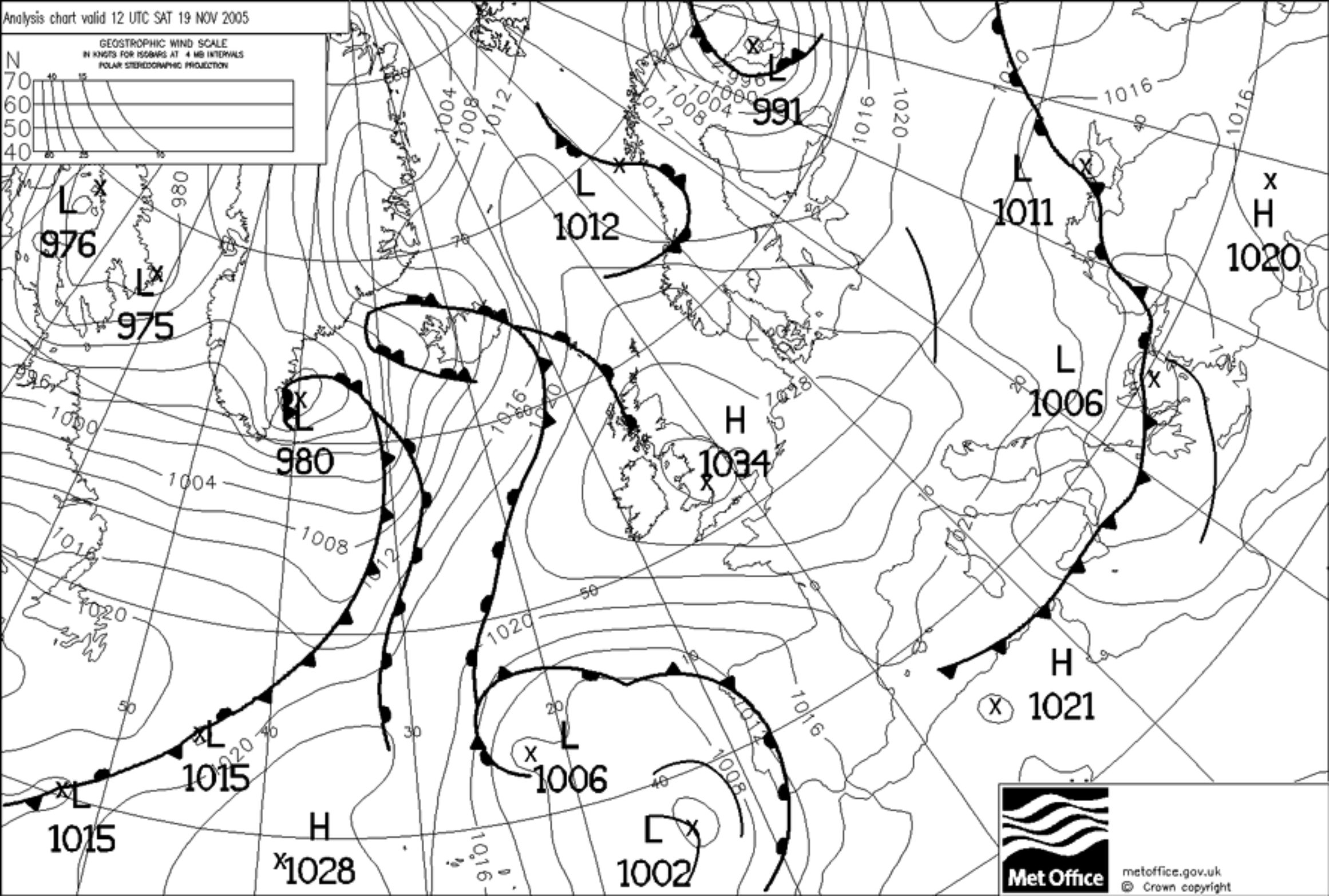
Flight Track:



FLIGHT SUMMARY

Flight No B141
Date: 19 Nov 2005
Project: Cirrus
Location: Irish Sea

Start Time	End Time	Event	Height (s)	Hdg	Comments
084557		Position	-.37 kft	359	50'43.93N,3'24.81W
102134		De-Ice	-.38 kft	100	Wings and tail
103921		INU	-.38 kft	100	To Navigate
110621		T/O	1.3 kft	324	Exeter
111112		ASPs	5.9 kft	331	Open
113038		Videos	10.0 kft	316	Start UFC & DFC
113237	114732	Profile 1	10.0 - 0.04 kft	309	500fpm 5k' Q1031
114949	115016	Profile 1	0.00 - -.25 kft	144	500'-250',Q1030
115017	120130	Run 1	-.25 - -.26 kft	143	
115258		Heimann	-.25 kft	137	Cal SST=12.6C
120141	120904	Profile 2	-.22 - 5.0 kft	134	500fpm to FL50
121242	122253	Profile 2	5.0 - 14.0 kft	304	
122329	122928	Profile 2	14.0 - 19.9 kft	023	
123048	123202	Profile 2	20.0 - 21.0 kft	042	
123504	124438	Profile 2	21.0 - 29.0 kft	042	
125341	130233	Run 2	29.1 - 29.0 kft	152	
130654		Videos	29.0 kft	324	Change tapes
130801	131001	Orbit	29.1 - 29.0 kft	357	45deg right, 360
131107	131256	Orbit 2	29.0 kft	087	45deg right, 080
131535	132333	Profile 3	29.1 - 33.1 kft	320	500fpm abv FL311
132407		Event	33.0 kft	331	Contrailing
132938	133331	Profile 3	33.0 - 34.0 kft	172	
133515	133731	Profile 3	34.0 - 35.0 kft	119	
134031	135049	Run 3.1	35.1 - 35.0 kft	318	
134233		Sonde	35.0 kft	312	Launch #01
134828		Sonde	35.0 kft	314	Launch #02, on RFC
135338	140348	Run 3.2	35.0 kft	148	Still contrailing
140648	140819	Profile 4	35.1 - 34.0 kft	326	
140819	141830	Run 4	34.0 kft	318	
141351		Videos	34.1 kft	317	Change tapes
142141	142406	Profile 5	34.1 - 32.0 kft	137	
142406	143001	Run 5	32.0 kft	136	In Cloud
143452	143715	Profile 6	32.1 - 30.0 kft	312	
143716	144605	Run 6	30.0 kft	311	Still contrailing
144859	145144	Profile 7	30.0 - 28.0 kft	152	
145145	145835	Run 7.1	28.0 kft	139	
150258	151043	Run 7.2	28.0 kft	320	Not contrailing
151121	151246	Orbit 3	28.1 kft	025	50deg right, 010
151358	151525	Orbit 4	28.1 - 28.0 kft	076	50 deg right, 060
151718	152150	Profile 8	28.0 - 32.0 kft	176	In Cirrus
152150	153803	Run 8	32.0 kft	185	
152500		Videos	32.0 kft	190	End tapes
154632		ASPs	18.6 kft	165	Closed
160446		Land	-.38 kft	174	Exeter
160939		Position	-.38 kft	107	50'43.93N,3'24.81W


Analysis chart valid 12 UTC SAT 19 NOV 2005
GEOSTROPHIC WIND SCALE
IN KNOTS FOR ISOBARS AT 4 MB INTERVALS
POLAR STEREOGRAPHIC PROJECTION
N
70
60
50
40
L 976
L 975
L 980
L 1012
L 991
L 1011
H 1020
H 1034
L 1006
H 1021
L 1015
L 1015
H 1028
L 1006
L 1002
1000
1004
1008
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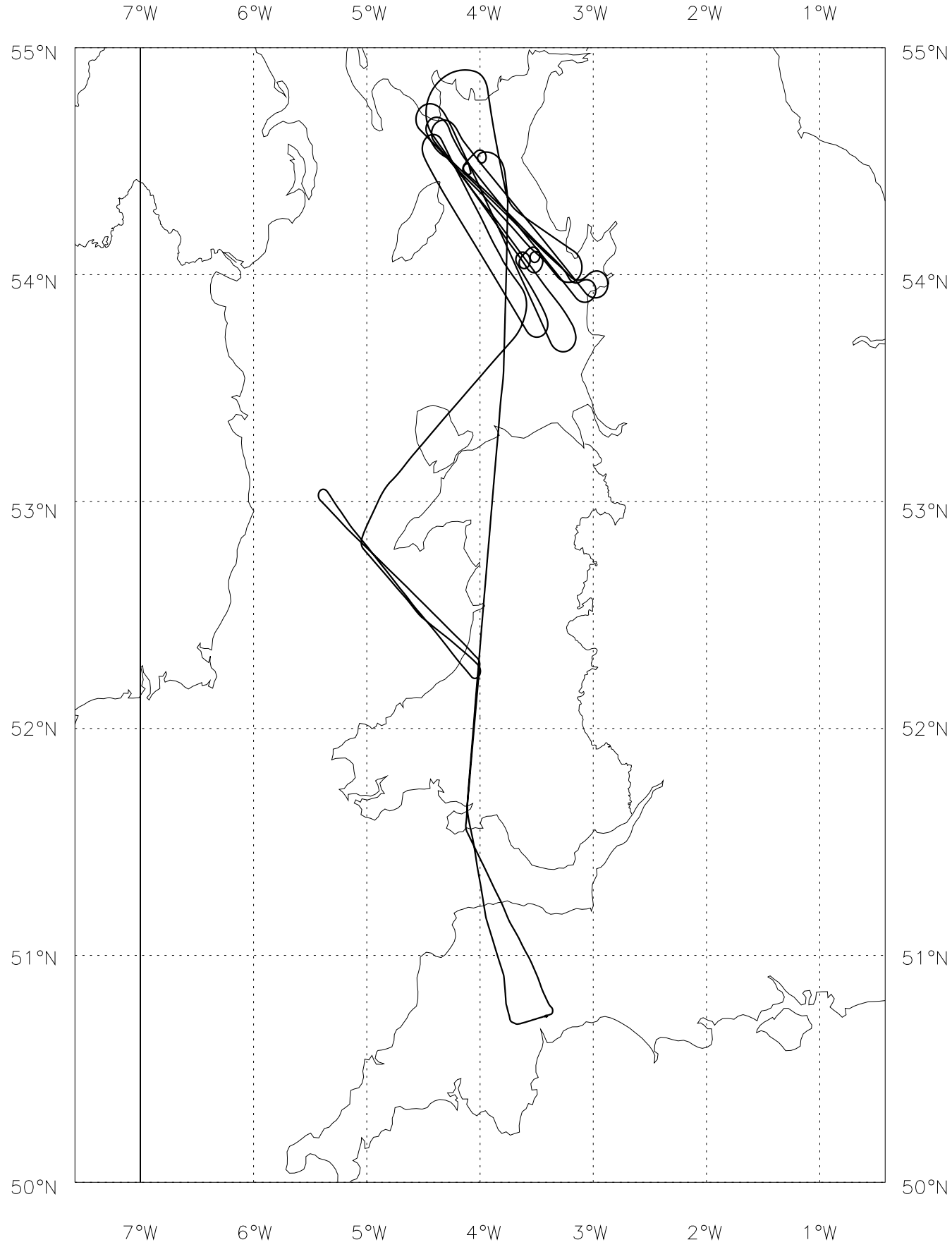
B141 Track 19-NOV-05



CAESAR SORTIE BRIEF (updated 18/11/05)
Measurement of cirrus multi-frequency radiative properties

B141 – 19th November 2005

Aim

The aim is to study the radiative properties at multiple frequencies of cirrus over the sea, coincident with an overpass of the CloudSat-Aqua Satellite.
Straight and level runs are to be made above, in and below the cirrus, to determine the radiative and microphysical properties. Runs should be perpendicular to the wind direction and advecting with it. Orbits are to be made below the cloud with SWS viewing upwards to determine the phase function of the ice particles.

Weather

Cirrus with clear skies below.

Operating region

Irish Sea

Clearances

Clearances will be required for flying at 100ft and for dropping sondes.
Notam area B.

Operating Area: Irish Sea

	Time	**Manoeuvre**	**Duration (min)**
1	10:35	Takeoff from Exeter & Transit at appropriate level to enter operating area at min altitude	30
2	11:05	Straight and level run of 10 mins duration at 250 ft over sea	10
3	11:15	Profile ascent from min altitude to 1000ft below cirrus base.	30
4	11:45	Fly 1 straight and level run 1000ft below cirrus, of 10 mins.	12
5	11:57	Fly two orbits below cloud at max banking angle (60 deg?) in nappy-pin manoeuvre.	10
6	12:07	Profile ascent to max altitude	10
7	12:17	Fly 3 straight and level reciprocal runs at max altitude, each of 10 mins. Drop 1 or 2 sondes.	36
8	**12:35**	**Satellite overpass**	
9	12:53	Profile descent to 1000ft below max alt (in cloud)	3
10	12:56	Fly 1 straight and level runs in cloud, of 10 mins	12
11	13:08	Profile descent to 1000ft above cirrus base	10
12	13:18	Fly two straight and level reciprocal runs in cloud, each of 10 mins	24
13	13:42	Profile descent to 1000ft below cirrus base	3
14	13:45	Fly two straight and level reciprocal runs 1000ft below cirrus base, orientated across wind, each of 10 mins.	24
15	14:09	Fly two orbits below cloud at max banking angle (60 deg?) in nappy-pin manoeuvre.	10
16	14:19	Profile ascent to 1000ft above cloud top or max alt.	15
17	14:34	Fly 3 straight and level reciprocal runs 1000ft above cirrus top or max alt, each of 10 mins. Drop 1 sonde in 1st run.	36
18	15:10	Profile descent to transit altitude	15
19	15:25	Transit to Exeter	30
20	15:55	Land Exeter	TOTAL 320

Requirements for ARIES and SWS

In the cloud:

ARIES: nadir with cals every 2 minutes ideally during turns.
SWS: series of 0, 180, 90 and 45 degree viewing angles during every run with appropriate cals (measurements to be used to test Robin Hogan's 3D stochastic model).

Above cloud:

1st run above cloud
ARIES & SWS both viewing nadir. Calibrations to be coordinated such that both instruments simultaneously view the cloud for the maximum time.
2nd run above cloud
ARIES & SWS both viewing nadir **then** for last 2 minutes both viewing zenith .

Below cloud:

ARIES & SWS both viewing zenith, including during the orbits**.** Calibrations to be coordinated such that both instruments simultaneously view the cloud for the maximum time.

B141 – Mission Scientist De-brief
19th Nov 2005
Dr Clare Lee

The aim of the sortie was to study cirrus using radiative and in-situ measurements. The operating area was in the Irish Sea, which limited the length of run due to air traffic corridors. Generally where the cirrus was thicker there was patchy Cu below. Contrails were being produced generally above FL300. Engine details were noted.

The takeoff time from Exeter was delayed to 11:05 due to icing of the aircraft. There was concern that some of the deicing fluid may have run over instrument inputs during the takeoff, although the instrumentation were covered during the deicing process. The delay meant that the aircraft was not in position above the cirrus during the AQUA overpass.

A profile descent (P1) was made into the Aberporth area, which had generally clear sky. To the western end of the profile the cirrus became thicker, but also small patches of Cu increased. A run (R1) was made at 250ft (limited due to the pilots) to characterise the sea surface temperature. At the SE end of the run, it became clear sky again.

An interrupted profile (P2) was made to FL290 ending further North (East of the Isle of Man), where there was cirrus. A run (R2) was made below the Ci, with ARIES and SWS viewing zenith. As the Cu patches thin below, the Ci also thinned above. At 13:08 two 45 deg right hand orbits were made in the "nappie-pin" manoeuvre. An interrupted profile (P3) was made to characterise the in-situ particles from FL290 to maximum altitude (FL350). Ice crystals were seen with 2DC and CPI, but in small concentrations (maximum 100 per litre). The cirrus extended above FL350. Two reciprocal runs were made (R3.1 & R3.2) with ARIES and SWS viewing nadir. At 13:42 drop sonde 1 was launched and 13:49 drop sonde 2.

A profile descent (P4) was made deeper into the cloud to FL340, though still only low particle concentrations. On run 4, ARIES and SWS viewed zenith. A profile descent (P5) to FL320 was made and a run (R5) at that level with ARIES and SWS viewing zenith. A profile descent (P6) was made to FL300 to get below the cloud, but particles were still being detected during run 6.

A profile descent was made to FL280, where particles were no longer being detected and contrailing also stopped. A straight and level run (7.1) was made below the cloud with large radiometers viewing zenith. A short reciprocal run (7.2) was made, followed by 2 orbits starting at 60 degrees relaxing to 50 deg to maintain altitude. A final profile (P8) was made to FL320 to be in the cloud. Run 8 was made at FL320 heading towards Exeter, coming out of the cloud at 15:35. Landing at Exeter was at 16:04, giving a sortie time of 4hr 58mins.

Summary
A moderately successful flight, cirrus was not ideal due to its inhomogeneity and inability to climb above it, as well as some low cloud below. Useful contrail data.

Instrument status

AVAPS – OK
ARIES – OK
MARSS – OK
Deimos – suspect data. High noise?
SWS – OK
Cloud Physics – OK, except PCSP and 2DP at high alt.
ADA CPI – OK
FWVS – OK
TAFTS – LW too noisy. SW zenith –OK. SW nadir – U/S.

Aircraft Scientist's Log

Flight No B.141..... Date ..19/11/05.. Page 1 of 8

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
11:05				~~Exeter~~	T/O.
					Delay due to icing of aircraft.
					Mainly clear 1/8 Ci, Cu in dist.
11:31			313	52.3N 4W	Starting descent.
					Clear above Ci Ahead.
11:32:37	P1	100	311		Profile descent. 1000ft/min.
11:38:56					Changing to 500ft/min descent.
11:41:30				52.7N 4.9W	Clear above, hazy to E.
					1/8 Ci
11:45					Start 1/8 Cu v. thin.
					profile descending
					underneath before reaching
					it.
11:47:32	Plint.	500ft.			Turning around to clear area.
					+ edge of flight boundary.
11:49:49	Plint.	500ft.			
11:50:17	P1	250ft.			Small Cu patchy above.
11:53:19		"			Clear above.
					Heimann 12.6 C.
12:09:30	P1and	250ft.			Clear above Ci only in dist.
12:01:41	P1	250ft.			Profile climb.
			136		Clear above Ci in dist.
					but over land.
12:09:04	P1int.	FL50			Intercept. profile going over land
					slightly. (12:07:44)

Aircraft Scientist's Log

Flight No **B**.141..... Date ..19/11/05..... Page 2.... of 8....

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
12:12:42	P2 start		305		
12:22:53	P2 int.	140FL.			Intercept to turn to right.
12:23:29.	P2 start.		027		Cloud physics all clear sky.
12:29:28	P2 int.	FL200			
12:30:68	P2 start	FL200	043		
12:32:02.	P2 int.	FL210	042.		SWS seeing signal in zenith.
					cloud physics nothing
					heading through airways
					to more Northern area to
					get good Ci
					Missing Ci + Satellite coincidence.
12:35:04	P2 st.	FL210	043		St. Cu off to W
12:37:00		FL260.	042.		SWS seeing large signal.
					Air traffic restricting us
					to FL290.
12:43:32					
12:46:38	P2 end	FL290			
12:53:41	R2	FL290.	145	Near Isle of Man.	Run below Ci
					SWS + RADIES ↑
					At start of run 2D saw
					something, but no image.
					N.B. Still got 3/8 St Cu below.
13:00:19				53.8N 3.7W	St. Cu v. small amounts
					SWS seeing less Ci above also.
13:02:19.	R2 end.				Clear below

Aircraft Scientist's Log

Flight No **B**141 Date 19/11/05 Page 3 of 8

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
					Turning to left.
					heading towards thicker Ci
					but also St. @ below.
13:07:45					Orbit to right hand.
	O1start		360		Start orbit 45°
					clear below
13:09:32	~~O1end~~				Possibility of catching some St.
13:10:01	O1end.				
13:11:07	O2start		080		Orbit right ~45°.
					clear below.
13:12:21	~~O2end~~				Some patchy Cu. (1/8) below.
13:12:56	O2end				Continuing around to head
					into correct direction.
13:15:35	P3	FL290	321		→ FL350.
13:16:26		FL300			Small ice crystals ~75μm→100μm
					CPI ice. 150μm
					V. low concs. ~50/L.
					T -52.5C, TD -68.6C
					(500ft/min climb)
					hexagonal columns in CPI
13:23:00					2D seeing fewer particles. peak 100/L only.
					175μm sizes. max. not much change.
13:23:35			320.		Continuing.
13:23:33	P3int.	FL330			T -58.5 TD -53.23

Aircraft Scientist's Log

Flight No B...141..... Date ...19/11/05..... Page ..4.... of ..8....

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
132669.					Contrails:
					N1 96.4, 96.4, 96.4, 96.3
					T61 757, 738, 725, 765
					N2 90.2, 90.6, 90.0, 90.0
					FF/FN 5.6, 5.5, 5.6, 5.7
					FWVS:
					-48 Dew Pt.
					T aircraft = -58.69, T_D -54.06
132928	P3 stat.	FL330	172.	54.4, 3.9W	Still contrails:
					N1 96.5, 96.4, 96.5, 96.4
					T61 756.5, 737, 724.5, 763.5
					N2 90.2, 90.55, 90.0, 90.0
					T = -59.9C, T_D -54.44
					FWVS = -49C dew pt. needs
					analysing afterwards as
					small rants make it hard
					to determine FWVS dew pt.
13:33:31	P3 int.	FL340			Air traffic interruption.
13:35:15	P3 stat.	FL340	118		Recurrence climb.
13:37:31.	P3 end.	FL350.			
13:40:31	R3.1	FL350.			Start Run
	S1	FL350.			Sonde drop.
13:45:09					2D: seeing ice again.
					10/2 75µm.

Aircraft Scientist's Log

Flight No B.141..... Date 19/11/05..... Page 5 of 8

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
13:46:50.					Contrails:
					N1 96·8, 96·8, 96·9, 96·8
					TGT. 753, 741, 721, 767
					N2 90.9 90.5, 89.85, 89.7
					FF 5.3, 5.2, 5.2, 5.3.
13:47:37		FL350	314		Seeing St. Cu below.
					SWS has also been seeing
					large values.
13:49:00	S2	FL350.		54.5N, 4.2W	Drop Sonde.
					Still contrailing
13:49:34.					2D low conc. , but fairly
					large particles. CPI hexagonal but not many.
13:50:49	R3.1end	FL350		54.7N, 4.5W	Turning right.
13:53:38	R3.2st.		151		
14:01:51					Contrailing. still.
14:03:48	R3.2end				Turning reciprocal. left h.turn.
14:06:48	P4st	FL350	336	53.7N3.1W	Profile descent. → FL340
14:08:19	P4end	FL340			
14:08:19	R4st.		318		Contrails (AMES + SWS ↑)
					N1 90.8, 90.85, 91.0
					TGT 701 679 668 717
					N2 87.6 87.8, 87.5, 87.5.
					FF 4.6
					2DC 2DC.
					clear below.
14:18:30	R4end.	FL340.			End on right turn.

CPI + 2D not seeing much conc.

Aircraft Scientist's Log

Flight No **B**...141..... Date ..... Page 6 of 8

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
14:21:41	PSst.	FL340	137		Profile descent to FL320.
					4 3/8 at Nadlem Excl.
					2DC 30 l.
14:24:06	PSend.	FL320	136	54:3N 3.7W	
"	RS				clear below
					Contrails
					N1 88.2, 88.2, 88.1, 88.1
					TGT 685, 666, 655, 702
					N2 86.9, 87.0, 86.7, 86.7
					FF 4.6, 4.5, 4.5, 4.7
14:26					2D, CPI seeing large concs.
					aggregated shapes.
14:27:18					conc. much less on 2D.
					can now also see 4 below.
14:30:01	RSend.				end run, left turn then right to get on track
14:34:32	P6				descent ⇒ FL300
14:36:					plates 300 → 400μm
					aggregates, columns ~75μm x 300μm
14:37:16	P6end	FL300	310		
" "	R6st.				Still seeing crystals v. large 500x600μm
					in CPI
14:46:68					seeing pristine crystals +
					some clusters. in CPI.
14:46:05	R6end				End run, turning right.

Aircraft Scientist's Log

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GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
					N1 85.9 Contrailing but less so
					TGT 664
					N2 86.0
					FF 6.4
14:48:59	P7st.	FL300	168		descent ⇒ FL280
14:50:36					Stopped contrailing:
					N1 69.55, 69.9, 69.9, 69.5
					TGT 594, 567, 523, 569
					N2 80.2, 80.2, 78.6, 78.9
					FF 3.1, 3.0, 3.2, 3.3
14:50:59		FL280.			2D not seeing any Ci or Cbl.
14:51:65	R1end	FL280			
" "	R7st.	FL280	138		Small Cu below.
14:58:35	R1end	FL280			then right. end on left turn. v-small Cu below.
					SZA ~80°?
15:02:58	R7.2	FL280	313		3/8 Cu below.
15:05:00			310		2D seeing v. small arcs.
					clear below.
					No contrails.
					N1 88.2, 90.7, 91.1, 89.3
					TGT 692, 702, 693, 720
					N2 87.6, 88.9, 88.8, 87.9
					FF 5.2, 5.5, 5.6, 5.5
15:10:43?	R7.2				
15:11:21	03				Orbit to right. 60° ⇒ 50°

Aircraft Scientist's Log

Flight No **B**...141..... Date ..19/1/05..... Page ..8.. of ..8..

GMT	Run / Profile	Height	Hdg	GPS Position	Remarks (clouds, weather, visibility, winds, sea state etc.)
15:12:46	O3end	FL280			end orbit.
					seems 50° limit to angle.
15:13:58	O4 st.		060		
15:15:25	O4end.				End of orbit turning to continue on heading.
15:17.18	P8 st.	FL280 ~~FL320~~	177		Profile climb. -> FL320
15:20:29		FL280	185		Contrailing.
					N1 96.1, 96.1, 96.2, 96.3
					TAT 758, 744.5, 730, 710
					N2 90.5, 90.7, 90.3, 90.3
					FF 5.75, 5.7, 5.7, 5.8
15:21:50	P8end.	FL320	185		CPI conc. low size ~300 μm.
					2D seeing ~ 3/L concs.
					in profile.
? 15:21:50 15:32:28	R8 st.	FL320.	189		
15:35:03		FL320.	189	52.6N 3.9W	2D not seeing anything really at all now.
15:38:03	R8end.	FL320			end science. last status.
					AVAPS - OK.
					ARIES - OK.
					MASS/Deimos - OK. Deimos ? suspect.
					SWS - OK.
					Cloud physics - O.K etc. PCASP 2DP at high alt.
					ADA-CA - OK.
					FLNS - OK.
					TAFTS - Good.

CLOUD PHYSICS LOG Flight B 141

Date: 19/11/05 Operator: MAP DRS time:09:28:00 DAU1 time:09:28:00 DAU2 time: 09:28:00 DAU3 time:09:28:00 AUX1 time:09:28:00 AUX2 time: Page 1 of 1

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
11:32:37	30	0.07	0	1													Start Profile 1 from FL100
11:33:44	55	0.07		1													FL090
11:34:49	55	0.08		1													FL080
11:35:54	80	0.07		1													FL070
11:36:58	120	0.07		1													FL060
11:38:05	40	0.06		1													FL050
11:39:20	30	0.06		1													FL040
11:41:06	55	0.06		1													FL030
11:43:26	250	0.08		10													FL020
11:45:32	300	0.08		10													FL010
11:50:14	360	0.08		10													End of Profile 1 & Start Run 1 @ 250’
11:51:00	270	0.08	1	10													
11:53:00	245	0.07		10													
11:55:00	300	0.06		10													
11:57:00	200	0.07		15													
11:59:00	250	0.06		10													
12:01:00	290	0.06		10													
12:01:35																	End of Run 1
12:01:43	290	0.06		10													Start Profile 2 from 250’
12:03:25	60	0.06		5													FL010
12:05:20	40	0.06		3													FL020
12:06:24	Noise			1													FL030
12:07:46	20	0.06		1													FL040
12:09:05	Noise			1													FL050
12:13:51	85	0.07		1													FL060
12:15:10	65	0.06															FL070
12:16:15	60	0.06															FL080
12:17:25	35	0.06															FL090
12:18:29	65	0.06															FL100
12:19:37	40	0.06															FL110
12:20:42	65	0.07															FL120
12:21:49	45	0.07															FL130
12:22:58	15	0.06															FL140
12:24:36	Noise																FL150
12:25:44	20	0.06															FL160
12:26:39	20	0.06															FL170
12:27:36	20	0.06															FL180
12:28:33	10	0.06															FL190
12:29:27	10	0.06															FL200
12:32:01	Noise																FL210
12:36:12	Noise																FL220
12:37:11	Noise																FL230
12:38:22	Noise																FL240
12:39:35	Noise																FL250
12:40:53	Noise																FL260
12:42:04	Noise																FL270

CLOUD PHYSICS LOG Flight B 141

Date: 19/11/05 Operator: MAP DRS time:09:28:00 DAU1 time:09:28:00 DAU2 time: 09:28:00 DAU3 time:09:28:00 AUX1 time:09:28:00 AUX2 time: Page 2 of 2

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
12:43:05	Noise		1					Noise									FL280
12:44:38	Noise							Noise									End of profile 2 @ FL290
12:46:00								Rearm 1									
12:53:41								Noise									Start Run 2 @ FL290
12:54:00	Noise			20		3		Noise									
12:56:00	Noise							Noise									
12:58:00	Noise							Noise									
13:00:00	Noise							Noise									
13:02:00	Noise							Noise									
13:02:33								Noise									End of Run 2
13:08:00						Noise		Noise									Start Orbits
13:12:54								Noise									End Orbits
13:15:33	Noise							Noise									Start Profile 3 from FL290
13:17:10	Noise			80		30	125	Noise								11	FL300
13:18:15	Noise		2	80		45	175	Noise								10	FL310
13:20:33	Noise			90		35	125	Noise								11	FL320
13:23:35	Noise		3	20		12	100	Noise								11	FL330
13:33:31	Noise		4	15		Noise		Noise									FL340
13:37:28	Noise			5		1	100	Noise								11	End of Profile 3 @ FL350
13:40:35																	Start Run 3.1 @ FL350
13:41:00	Noise			10		3	100	Noise								11	
13:43:00	Noise		5	20		10	75	Noise								11	
13:45:00	Noise			50		15	125	Noise								10	
13:47:00	Noise			10		10	75	Noise								11	
13:49:00	Noise			20		Noise		Noise									
13:50:49																	End of Run 3.1
13:53:39																	Start Run 3.2 @ FL350
13:54:00	Noise			20		10	75	Noise								11	
13:56:00	Noise			30		15	75	Noise								11	
13:58:00	Noise			80		3	100	Noise								11	
14:00:00	Noise			80		6	50	Noise								11	
14:02:00	Noise		6	150		20	75	Noise								11	
14:03:49																	End of Run 3.2
14:06:49	Noise			20		1		Noise								11	Start Profile 4 from FL350
14:08:17	Noise			100		25	75	Noise								11	End of Profile 4 & Start Run 4 @ FL340
14:09:00	Noise			100		30	75	Noise								11	
14:11:00	Noise		7	20		25	75	Noise								11	
14:13:00	Noise			80		25	75	Noise								11	
14:15:00	Noise			10		3	100	Noise								11	
14:17:00	Noise			80		9	75	Noise								11	
14:18:32																	End of Run 4
14:21:41	Noise		8	10		5	75	Noise								11	Start Profile 5 from FL340
14:22:51	Noise			30		7	125	Noise								11	FL330
14:24:08	Noise			100		90	150	Noise								11	End of Profile 5 & Start Run 5 @ FL320
14:26:00	Noise		10	200		150	150	Noise								10	
11:28:00	Noise			15		20	150	Noise								10	

CLOUD PHYSICS LOG Flight B 141

Date: 19/11/05 Operator: MAP DRS time:09:28:00 DAU1 time:09:28:00 DAU2 time: 09:28:00 DAU3 time:09:28:00 AUX1 time:09:28:00 AUX2 time: Page 3 of 3

G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
11:30:00	Noise		10	10		10	100	Noise								11	
11:30:01																	End of Run 5
11:34:56	Noise			20		20	150	Noise								10	Start Profile 6 from FL320
11:37:17	Noise		11	100		30	175	Noise								10	End of Profile 6 & Start Run 6 @ FL300
11:38:00	Noise			40		20	150	Noise								10	
11:40:00	Noise			20		6	100	Noise								10	
11:42:00	Noise		12	20		15	150	Noise								10	
11:46:05	Noise			80		10	150	Noise								10	End of Run 6
11:49:01	Noise			5		8	100	Noise								11	Start Profile 7 from FL 300
11:50:25	Noise			1													FL290
14:51:52	Noise			1				Noise									End of Profile 7 & Start Run 7.1 @ FL280
14:52:00	Noise			1				Noise									
14:54:00	Noise							Noise									
14:56:00	Noise			10				Noise									
14:58:00	Noise							Noise									
14:58:35																	End of Run 7.1
15:02:58																	Start Run 7.2 @ FL280
15:03:00	Noise			10		2	100	Noise								11	
15:05:00	Noise			1				Noise									
15:07:00	Noise							Noise									
15:09:00	Noise							Noise									
15:10:45																	End of Run 7.2
15:11:29																	Start Orbits
15:15:25																	End Orbits
15:17:19	Noise							Noise									Start Profile 8 from FL280
15:18:34	Noise			10		5	100	Noise								11	FL290
15:19:46	Noise			10		5	100	Noise								11	FL300
15:20:46	Noise			100		30	75	Noise								11	FL310
15:21:51	Noise		13	10		3	75	Noise									End of Profile 8 7 Start Run 8 @ FL320
15:22:00	Noise			10		10	75	Noise								11	
15:24:00	Noise			5		9	125	Noise								10	
15:26:00	Noise			90		18	100	Noise								10	
15:28:00	Noise			150		18	125	Noise								10	
15:30:00	Noise		15	90		16	125	Noise								10	
15:32:00	Noise		16	80		8	100	Noise								11	
15:34:00	Noise			10		1	75	Noise								11	
15:36:00	Noise			2													
15:38:00	Noise		17	1													
15:38:03																	End of Run 8
	PCASP Flowrate = 1cc/sec																
	PCASP OK at low low altitudes in general with some CH1 noise on occasions but was too noisy at high altitudes																
	2D2-C Sometimes noisy																
	2D2-P Noisy at high altitudes																
	SEADAS time offset = 0																

CLOUD PHYSICS PROCESSING LOG

Flight number: B141
Date: 19/11/2005

A) FFSSP PROCESSING		
Processing Stage	Completed	Comments
1) Transfer *.txt files from DVD to PC B141_FFSSP_hh.txt for each hour of data B141_FFSSP_HVMS.txt		
2) FTP the files (ascii) from the PC to the directory PMSDATA: on FLOODS		
3) RUN MRFB:[PMS.FAST_FSSP]FSSP_EXTRACT_TAS a) Flight number: B141 b) Path name: MFDDATA:B141_MFDX c) Output directory: PMSDATA: d) Start time: 0 if unknown e) End time: 240000 if unknown	21/11/05	
4) RUN MRFB:[PMS.FAST_FSSP]FFSSP_PROCESS_TXT a) Flight number: B141 b) Directory: PMSDATA: c) TAS in processing: Y d) Vel threshold (clicks) 0 e) Calibration file: Use the most recent calibration file. Format FFSSP_CALddmmyyyy.txt Calibration files to be stored in MRFB:[PMS.FAST_FSSP] f) Adjust FFSSP time Y/N g) If Y, enter value to add to data time (seconds)	21/11/05	Note the calibration file used FFSSP_CAL19102005.TXT Yes only if gross errors occur in FFSSP time eg; ~ 1hour
5) In PVWAVE a) enter: !path=!path+',mrfb:[pms.proc]' Note that the comma before "mrfb" is important! b) write_procffssp_to_m5,'pmsdata:B141_procffssp.dat', 'mfddata:B141_mfdX','pmsdata:B141_m5procffssp',/auto 1st argument is output file from 5) 2nd argument is the MFD 3rd argument is the new FFSSP data file in M5 format		Note the correction applied to FFSSP time by /auto
c) exit	22/11/05	complete
6) MODIFY a) Modifying datasets: pmsdata:B141_m5procffssp b) Datset: mfddata:B141_mfdX c) New dataset: Enter updated MFD name d) Parameter description file: leave blank to use default	22/11/05	

CLOUD PHYSICS PROCESSING LOG

Flight number: B141
Date: 19/11/2005

B) 2D PROCESSING		
Processing Stage	Completed	Comments
1) Transfer B141.dat file from CD/DVD to PC		
2) Zip up file on PC (B141.zip)		
3) FTP the zipped file (binary) from the PC to the directory SEADAS_DATA:[SEADAS_DATA] on FLOODS		
4) Log on to FLOODS		
5) unzip SEADAS_DATA:[SEADAS_DATA]B141.zip		
6) In PVWAVE i) !PATH=!PATH+',MRFB:[PMS.PROC]' ii) CONVERT_SEADAS_FILE a) Input file: SEADAS_DATA:[SEADAS_DATA]B141.dat b) Output file: SEADAS_DATA:[SEADAS_DATA] B141_seadas.dat iii) exit	22/11/05	Note the number of bad block reads and/or final numbers of blocks read & written Complete, no errers
7) run MRFB:[PMS.SEADAS]READM200_FILE a) Default directory: PMSDATA: b) Flight number: B141 c) Disk file name: SEADAS_DATA:[SEADAS_DATA] B141_seadas.dat d) Comment string: e) Start time: 0 if unknown f) End time: 240000 if unknown g) Read 2DC: Y h) Read 2DP: Y i) Secondary data Y j) FSP-SYNC: Y k) cmd.str: Y l) Auto time correction: N m) Full length secondary: N	22/11/05	Complete, as guideline
8) 2D image display and printing Quick look at image blocks if required In PVWAVE i) !PATH=!PATH+',MRFB:[PMS.PROC]' i) WAVE> IMAGEDISPLAY a) 2D directory name: PMSDATA: b) Flight number: B141 c) IWC plot: N d) Select probe: (1) 2DC (2) 2DP e) Start time: 0 if unknown f) End time: 240000 if unknown g) Time interval (sec): 0 for every image block nominal 5 sec		This section is optional
Preparation of imagery for Core data product iii) WAVE> auto_image		

a) 2D directory name: PMSDATA: b) Flight number: B141 c) Enter date: YYYYMMDD d) Enter start time 0 if unknown	113000	
e) Enter end time 240000 if unknown	154500	
f) Enter time interval (sec) between successive imaged blocks 10	10	
iv) exit PVWAVE Creates files	PMSDATA:	FAAM_YYYYMMDD_R0_B141_2Dx_IMAGES.PS
ftp *.PS files from PMSDATA: to PC		
Load each into Ghostview or other pdf-converter		
Output as pdf file (70 dpi resolution) and append name prefix of CORE-CLOUD-PHY_ to converted files		Files on O:\CloudPhysics Core data
9) run MRFB:[PMS.SPEC2D.AUTO]PROCESS2D_AUTO a) Flight number: B141 b) Directory: PMSDATA: c) File generation: Hit enter d) Time correction: Time offset of the 2D data	0	As noted in operator log
e) TAS: Y f) MFD directory: MFDDATA:B141_MFDX g) Probe number: (1) 2DC (2) 2DP (0) Both 0 unless either probe known to be faulty	1	2D-P continuous noise
h) Start time: 0 if unkbown	113000	
i) End time: 240000 if unknown	154500	
j) Nominal averaging: 0.2 seconds for conversion to M5	0.2	
k) Particle type: 8 if known to be in ice cloud 11 if known to be in water cloud 8 if known to be in mixed-phase 8 if unknown	8	Note the particle type 2D-C has periodic noise throughout (possibly worse at coldest temperatures). Refer to printed image files for details. Much of this should be rejected during processing but may cause some residual contamination.
l) Coefficient choice: 2	2	
m) Output root filename: PMSDATA:B141_PROC2D	22/11/05	complete
10) In PVWAVE i) enter: !PATH=!PATH+',MRFB:[PMS.PROC]' Note that the comma before "mrfb" is important! ii) WRITE_PROC2D_TO_M5, 'PMSDATA:B141_PROC2D.DAT', 'PMSDATA:B141_M5PROC2D' iii) exit	22/11/05	Complete
11) MODIFY a) Modifying datasets: pmsdata:B141_m5proc2D b) Datset: mfddata:B141_mfdX c) New dataset: Enter modified MFD name d) Parameter description file: leave blank to use default	22/11/05	

CLOUD PHYSICS PROCESSING LOG

Flight number: B141
Date: 19/11/2005

C) PCASP PROCESSING		
Processing Stage	Completed	Comments
1) Complete stage 7) in 2D processing Ensures B141_FSP.DAT containing raw PCASP data is written to directory PMSDATA:		
2) run MRFB:[PMS.PCASP]PROCPCASP_NEW a) Flight number: B141 b) File name: PMSDATA:B141_FSP.DAT c) Root output name: PMSDATA:B141_PROCPCASP Produces PMSDATA:B141_PROCPCASP.DAT (binary) PMSDATA:B141_PROCPCASP.OUT (ascii) d) Minimum size channel: Default = 1 If smallest size channel are known to be noisy the value of the highest noise free channel to be entered here e) Calibration volume flow rate: Use the most recent value. Calibration files to be stored in **????** Entering zero gives default value = 1.0 cm3/sec f) Time correction: Same value as used in 2D processing stage 9 d) g) Start time: 0 if unknown h) End time: 240000 if unknown	 1 1.0 0 111000 154500	Note the min size channel Note the volume flow rate Noise noted at higher altitudes – not rejected at this stage. From operator log As noted in operator log 22/11/05 complete
3) In PVWAVE i) enter: !PATH=!PATH+',MRFB:[PMS.PROC]' Note that the comma before "mrfb" is important! ii) write_procpcasp_to_m5,'pmsdata:B141_procpcasp.dat' ,'pmsdata:B141_m5procpcasp' iii) exit	 22/11/05	
4) MODIFY a) Modifying datasets: pmsdata:B141_m5procpcasp b) Datset: mfddata:B141_mfdX c) New dataset: Enter modified MFD name d) Parameter description file: leave blank to use default	 MFDB 22/11/05	 complete

FAAM Dropsonde Flight Log

Flight No.	B141	Date	19/11/2005
Page No.	1 of 1	Operator	SWH

GMT	**Sonde No.**	**Event**	**Comments**
		e.g. launch, splashdown	*e.g. wind data? PTH data? Lat/Long* *NB strings of dropsonde data contain:* *time, pressure hPa, T deg C, RH %, wind direction deg, wind speed m/s, longitude, latitude, height m*
13:42:33	1	Launch	134233.0 238.10 -63.70 999.00 329.00 21.40 -17.70 -3.54970 54.11610 10676.50
	1		Good Sonde
13:55:01	1	Slash Down	135501.6 1029.49 6.71 75.42 125.39 2.80 -10.85 -3.49246 54.06424 -8.09 7
13:48:30	2	Launch	134830.0 238.10 -63.70 999.00 326.20 22.20 -16.00 -4.23610 54.48450 10676.50 0
	2		Good Sonde
14:00:51	2	Splash Down	140051.1 1027.91 8.50 65.78 169.94 1.89 -10.23 -4.16323 54.44288 4.40 7

Microwave Radiometers FLIGHT LOG	Date	19/11/05	Flight	B141	log pages	
Operator(s)	Ian Rule		Campaign	CAESAR		
Departure	Exeter		Arrival	Exeter		

System start

MARSS

Visual pod inspection						
Close 3 SSP circuit breakers						
Close all MARSS circuit breakers						
FERA on				at time	0842 ish	
Temperature controller initial temps	Ch16	°C	Ch 17	°C	Ch18	°C
Temperature controller set points		54°C		58°C	-20	40°C
MARSS CPU on				at time	0842 ish	
Initial target temperatures	Hot	272		Cold	272	
Target heating						
*** CHECK SCAN HEAD CLEAR ***						
Scanning on (LMD box)				at time	0842 ish	
Scan indication		Monitor			Visual	

Deimos

Close all Deimos circuit breakers					
Turn on Deimos CPU					
*** CHECK SCAN HEAD CLEAR ***					
Start Deimos Software			at time	0847 ish	
Initial target temperatures	Hot	271	Cold	271	
Target heating					
Scan indication		Monitor		Visual	
Weather	Cloud	1/8 Sc, 1/8 Ci	Precip	nil	
	Surface	frosty	Pressure	1020	
	Other	IAT = 5.7 (sun on rosemount?)			

System functionality check

(after initial system warmup, approx 1 hour)

PC to DRS Time error		$t_{PC}=t_{DRS}$ +	0	at time	0904	
Brightness temps 'sensible'						
Target temps	MARSS:	Hot	344	Cold	275	
	Deimos:	Hot	332	Cold	280	

Channel gains 'sensible'	Ch1 A (-)	Ch3 A (-)	Ch1 B (-)	Ch3 B (-)	
	44	30	38	30	
	Ch16 (40-44)	Ch17 (45-49)	Ch18 (40-44)	Ch19 (40-44)	Ch20 (44-48)
	U/s	30	36	36	39

Power changeover

Headset on before start		
Listen to engine start sequence	4, 3, 2, 1.	
LMD off (3 switches, bottom to top)		
Exit Deimos Software (x)		
POWER CHANGEOVER		
LMD on (3 switches, top to bottom)	then pushbutton	
Restart Deimos Software		
System running again		at time

Flight #	B	Date		Operator(s)		log page	2	of	3

Time	Run id	Alt/FL	*Remarks*	Sys
0906			Deimos ch 24B very suspicious, MARSS ch16 u/s, ch17 suspicious	
0947			MARSS pc time checked = DRS	
0948			Deimos pc time checked = DRS	
1054			Deimos off for power change	
110621			T/o Exeter	
1111			MARSS ch 16 back, all channels appear to be reacting correctly to climb	
1138 ish			Laptop crashed	
1144			Laptop back, but Demon showing garbage BT's, deimos main prog o/p looks reasonable, MARSS ok so far	
115017	**R1**	**250'**	End profile 1, start run	
1153			Restarting Demon and Deimos prog has not brought data back	
120130	**R1**		End run	
120141	**P2**	**250'**	Start profile	
1204			Deimos fully off and on again to try and reset. No luck	
124438	**P2**	**FL290**	End profile	
125341	**R2**	**FL290**	Start run	
130233	**R2**	**FL290**	End run	
130801	**O1**	**FL290**	Start orbit, RHD 45 deg, heading 360	
131001			End orbit	
131107	**O2**	**FL290**	Start orbit, RHD 45 deg, heading 080	
131256			End orbit	
131535	**P3**	**FL290**	Start profile to FL330	
1323			Laptop time check = DRS minus 1 s	
133731	**P3**	**FL350**	End profile	
134031	**R3.1**	**FL350**	Start run, drop sonde	
135040		**FL350**	End run	
135358	**R3.2**	**FL350**	Start run	
140348			End run	
140648	**P4**	**FL350**	Profile down	
140819	**P4/R4**	**FL340**	End profile, start run	
1410			Ch16 appears to be dropping out	
			Deimos data starting to reappear on screen, but not making sense, could be error in scan positions.	
141830		**FL340**	End run	
142141	**P5**	**FL340**	Start profile	
142406	**P5/R5**	**FL320**	End profile, start run	
143001			End run	
143452	**P6**	**FL320**	Start profile	
143716	**P6/R6**	**FL300**	End profile, start run	
144605		**FL300**	End run	
144859	**P7**		Start profile	
145145	**P7/R7.1**	**FL280**	End profile, start run	
145835			End run	
150258	**R7.2**	**FL280**	Start run	
151043			End run	

Flight #	B	Date		Operator(s)		log page	3	of	3

Time	Run id	Alt/FL	*Remarks*	Sys
151121	**O3**	**FL280**	Start orbit, rhd 50 deg, heading 010	
151246			End orbit	
151358	**O4**	**FL280**	Start orbit, rhd 50 deg, heading 060	
151525			End orbit	
			Start run, Deimos data display still not working properly, MARSS good except for ch16	
151718	**P8**	**FL280**	Start profile to FL320	
152150	**P8/R8**	**FL320**	End profile, start run	
153803	**R8**	**FL320**	End run	
1540			Laptop timecheck = DRS minus 1.5 seconds, not reset	
1542			MARSS pc timecheck = DRS plus 11s, not reset	
1543			Deimos pc timecheck = DRS +/- 0, Deimos displayed data still appears wrong	
160447			Land Exeter	

ARIES flight log

Flight: B141	Location: Irish Sea.		page 1 of 6
Date: 19/Nov/2005	Operator(s): S. Rogers.	Resolution: 1	Gain A: 2 B: 4
Notes:			

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
~08 32	Power up - ARIES off	- Too cold? (mirror temp -1.0°C)								ch1 - 1 min cal ch2 - 2 min cal N1 - as N min 6 Z1 - as Z min 6
	↳ Warm up			~08 35.						
~~08 56~~	On the pan	B141A	Closed	51.6	20.7	3.8	-189.9	22.9	CH1 *10	
~11 05	Take off									
11:23:03	Transit	B141D	C	61.3	13.5	7.9	-189.9	21.9	CH1 *5	
11 27 58	FL100 "	E	O	60.6	12.9	7.1	"	21.2	Z1 *3	Over Wales. Ci? above
11 30 59	"	F	C	61.1	14.6	5.9	"	17.1	CH1	Some banking during pass 2
11 32 37	P1 ↓									
11 45 10	~1000 ~~250~~ ft ↓	G	C	61.2	14.6	8.0	"	19.8	CH1 x2	
11 49 41	500 ↓ 250 ft	H	C	61.2	14.1	9.0	"	19.9	CH1 x1	
11 50 49	250 ft	I	C	61.2	14.2	9.2	"	19.9	N1 x2	R1 start 11:50:17
11 52 48	"	J	C	61.0	14.2	9.8	"	19.1	CH1 x1	
11 53 57	"	K	C	61.2	14.7	10.1	"	19.3	N1 x2	
11 55 57	"	L	C	61.1	14.9	10.6	-190.6	18.9	CH1 x1	
11 57 06	"	M	C	61.4	15.3	11.1	-190.6	19.1	N1 x2	
11 59 05	"	N	C	61.0	15.8	11.2	-190.6	18.8	CH1 x1	
12 06 11	"	O	C	61.1	15.7	12.0	-189.9	19.0	N1 x1	
12 01 25	"	P	C	61.1	15.9	12.4	-189.9	18.9	CH1 1	
12 01 41	P2 ↑									

ARIES flight log

Flight: B141	Location:	page 2 of 6
Date: 19/Nov/05	Operator(s): SMR.	Resolution: Gain A: B:
Notes:		

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
12 52 [illegible]	FL290	B141Q	C	60.4	4.3	-16.6	-189.9	16.3	CH1 x2.	
12 53 41	R1 shut									
12 54 21	FL290	R	O	60.6	2.5	-12.9	"	15.5	Z1 x2	
12 56 21		S	C	61.0	3.0	-18.3	"	9.1	CH1 x1	
12 57 28		T	O	60.5	2.9	-18.0	"	10.6	Z1 x2	
12 59 30		U	C	60.9	2.8	-21.1	"	7.5	CH1 x1	
13 00 39		V	O	61.2	2.9	-20.0		9.7	Z1 x2	
13 02 41	R1 end	W	C	60.9	3.0	-22.6		7.1	CH1 x1	
13 04 35		X	C	61.1	2.6	-21.9		11.6	CH1 x2	
13 06 57		Y	C	60.7	2.9	-21.0		14.8	CH1 x1	
13 08 04	01	Z	O	60.8	2.2	-21.1		15.8	Z1 x2	Shutter opens late by a few seconds
13 10 04		Φ	C	60.9	3.5	-22.9		9.8	CH1 x1	
13 11 19	02	1	O	60.7	2.5	-22.5		12.2	Z1 x2	—— " ——
13 13 15		B1412	C	61.1	3.0	-24.1	-190.6	7.6	CH1 x1	Orbits end a few seconds before Z view ends.
13 15 35	P3 ↑									
		Restarting Software to avoid crashes.								
13 26 20		C141B	C	54.3	11.7	-23.1		18.3	CH1 x1	
~~[illegible]~~	~~[illegible]~~									

ARIES flight log

Flight: B141	Location:	page 3 of 6
Date: 19/NOV/05	Operator(s):	Resolution: Gain A: B:
Notes:		

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
13 38 15	FL350	C141C	C	51.5	12.1	-25.5	-190.6	15.4	CH1 x1	
13 39 27	R3.1 13403	D	C	50.8	12.6	-25.5	"	15.4	CH1 x2	
13 41 31		E	C	51.2	12.3	-26.3	-189.9	15.7	N1 x2	↓
13 43 31		F	C	51.1	12.9	-27.6	-190.6	13.9	CH1 x1	
13 44 42		G	C	51.0	12.6	-28.1	"	14.6	N1 x2	
13 46 41		H	C	50.9	12.4	-29.4	-191.2	13.6	CH1 x1	
13 47 50		I	C	51.1	12.8	-29.1	-191.2	14.5	N1 x2	
13 50 02		J	C	51.3	12.9	-30.1	-190.6	13.7	CH1 x1	
13 51 31		K	C	50.9	12.0	-29.5	"	15.2	CH1 x2	
13 53 50	R3.2 FL350	C141L	O	51.2	13.3	-29.9	"	16.2	Z1 x2	↑
13 55 58		M	C	51.4	12.7	-32.5	"	10.2	CH1 x1	
13 57 12		N	O	50.8	12.7	-32.0	"	12.1	Z1 x2	
13 59 16		O	C	51.3	13.0	-33.4	-189.9	8.2	CH1 x1	
14 00 28		P	O	50.6	12.2	-33.0	"	10.5	Z1 x1	
14 01 48		Q	C	50.8	12.7	-34.3	"	7.7	CH1 x1	
14 02 53		R	C	51.1	12.4	-33.2	"	10.5	CH1 x1	
										↑
14 06 48	PL ↓									

ARIES flight log

Flight: B141 | Location: | page 4 of 6

Date: 19/NOV/05. | Operator(s): | Resolution: | Gain A: B:

Notes:

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
14 07 59	FL340	C141S	C	51.1	12.6	-32.7	-190.6		CH1 x2	
14 08 19	R4 14 08 19									
14:10:02		C141T	O	50.7	11.0	-32.7	-191.2	16.7	Z1 x2	↑
14 12 08		U	C	51.1	12.1	-34.1	"	9.6	CH1 x1	
14 13 18		V	O	51.0	12.2	-33.4	-191.6	11.6	Z1x2	Brief "picket fence" if !
14 15 24		W	C	51.5	12.6	-34.7	-190.6	7.5	CH1x1	
14 16		X	O	50.1	12.3	-33.8	"	10.2	Z1x1	
14 17 44		Y	C	51.3	12.4	-34.5	"	8.6	CH1 x1	
	Restarting software.									↑
14 20 55		D141B	C	50.9	12.4	-33.0	-189.9	14.2	CH1	
14 21 41	P5 ↓									
14 23 55	FL320	D141C	C	51.4	12.6	-32.2	-190.6	17.0	CH1 x2	
14 25 56	R5	D	O	50.8	12.9	-31.8	-190.6	17.1	Z1 x2	↑
14 28 04		E	C	51.1	12.1	-32.4	"	10.4	CH1 x1	
14 29 16		F	O	50.7	11.9	-31.9	"	12.1	Z1 x2	End of Run 14 30 01
14 31 18	FL320	G	C	51.2	12.6	-32.2	"	7.3	CH1 x1	
14 34 52	P6 ↓ FL200									

ARIES flight log

Flight: B141	Location:	page 5 of 6
Date: 19/NOV/05	Operator(s):	Resolution:	Gain A: B:
Notes:			

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
14 37 28	FL300 R6	D141 H	C	50.8	12.7	-30.2	-189.9	16.8	CH1	↑ —oo—
14 38 34		I	O	50.4	12.5	-29.9	-190.6	17.1	Z1 x2	
14 40 35		J	C	51.3	11.8	-30.2	"	10.6	CH1 x1	
14 41 46		K	O	50.6	12.9	-29.8	-191.2	12.6	Z1 x2	
14 43 56		L	C	51.5	12.6	-29.7		8.7	CH1 x1	
14 45 04		M	O	51.2	12.5	-29		11.5	Z1 x1	
14 46 19		N	C	51.3	12.4	-29	-189.9	9.6	CH1 x1	
14 48 59	P7 ↓ FL280									
14 51 41	R7-1	O	C	51	12	-27	-191.2	17	CH1 x1	
14 53		P	O	50	12	-27	-190.6	17	Z1 x3	Shutter open a little late
14 55 46		Q	C	50.7	12.5	-27.8	"	9.1	CH1 x1	
14 56 59		R	O	50.9	12.4	-27.2	"	11.6	Z1 x1	Shutter lock
14 58 06		S	O	51.1	12.6	-27.1		9.4	Z1 x1	Back at end.
14 59 09	FL280	T	C	50.9	12.4	-27.0		8.0	CH1 x1	
15 03 05	R7.2	U	C	50.9	11.8	-25.9		15.6	CH1 x1	
15 04 13		V	O	51.1	12.4	-25		16.4	Z1 x3	
15 07 04		W	C	51.2	11.7	-25.7	-190.6	9.5	CH1	
15 08 14		X	O	50.6	12.3	-25.8	"	11.9	Z1 x2	
15 10 14		Y	C	51.3	12.5			9.4	CH1	

ARIES flight log

Flight: B141	Location:	page 6 of 6
Date: 19/Nov/05	Operator(s):	Resolution:	Gain A: B:
Notes:			

DRS time	Flight ptrn	Filename	Shtr	HBB	CBB	Mir.	Det.	Win	Macro(s)	Comments
15 11 20	03	D141 2	O	50.7	11.4	24.2	-190.6	11.6	Z1x2	Orbit ends before scan view.
15 13 21		D141 Ø	C	51.5	12.6	-24	"	8.3	CH1	
15 14 30	04	1	O	50.6	12.2	-23.9	"	11.4	Z1x2	Orbit ends before view end.
15 16 28		2	C	51.2	12.5	-24.1	"	9.0	CH1	
15 17 18	P8 ↑ FL320									

SWS FLIGHT LOG SHEET

Flight # B441 | Date 19/11/2005 | Operator(s) M. GLEW | log page 1 of 2

Time	Run id	Alt/FL	Mirr Pos	Int Times Vis	Int Times NIR	Remarks
1055	Time synchronised. T +13°C, only running peltier 2					
1108	shutters don't always go to open/shut automatically.					
	run 2 dark current					
	playing around. Camera shows dust					
picked up	during take off (SWS pointing aft at take off)					
	Time set at 11.47Z, error −37 ms					
1148	P1	800'	180	1000	1000	
1150 FT	R1	250'	180	1000	1000	T +13°C
1155	dark current					
1201	dark current					
120130	R1 end	250'	180	1000	1000	Time read, error −88 ms
120500	P2	FL025	0	350	1000	Little NIR signal.
1207	looked forward to check NIR working - strong signal					
from looking	at aircraft.					
1218	Looked forward - strong signal from aircraft.					
1225	Dark currents.					
1226	P2	FL200	0	350	1000	Some NIR SIGNAL
1235	P2	FL210	0	200	500	stronger signals
						1238 Time reset, error 48 ms
124438	P2 END	FL290	0	350	500	
1247		FL290	6F	350	500	Pitch Aircraft pitch S-S
125341	R2	FL290	6F	350	500	
1257	R2	FL290	6F	100	200	
1259	R2	FL290	6F	200	200	1300 T +15°C
130235	R2 end	FL290	6F	200	200	
130801	O1	FL290	6F	100	200	RA 45° No clipping, good max
131107	O2	FL290	6F	100	200	1310 Time read, error −74 ms
131256	O2 end.					Pitch 45° in orbit
132500	P3	FL320	180	350	500	T +15°C Time read, error −50 ms
133741	P3 END	FL350	180	250	500	
134031	R3.1	FL350	180	250	500	
1346	CAN SEE	LOW	CLOUD	BRONUCENG	HIGH	COUNTS
135338	R3.2	FL350	6F	250	500	
135700	R3.2	FL350	6F	500	500	LOW NIR SIGNAL
140819	R4	FL340	6F	500	500	T +16°C 14:00
141830	R4 END					1404 Time reset, error 2 ms
142406	R5	FL320	6F	500	500	1423 Time ready, error 100 ms
1426	R5	FL320	6F	350	500	VIS was saturating at 500 ms
143001	R5 END					
143716	R6	FL300	6F	350	500	

SWS FLIGHT LOG SHEET

Flight # B141 | Date 19/11/2005 | Operator(s) M. GLEW | log page 2 of 2

Time	Run id	Alt/FL	Mirr Pos	Int Times Vis	Int Times NIR	Remarks
1441	R6	FL300	GF	350	500	dark currents.
144400	R6	FL300	GF	100	200	
144605	R6 END					
145145	R7.1	FL280	GF	350	500	1455 T + 16°C
145835	R7.1	END				1500 Time ready error - 49 ms
150258	R7.2	FL280	GF	100	200	
1505	R7.2	FL280	GF	350	500	Integration times bumped up
1509	R7.2	FL280	GF	100	200	Integration times changed for orbits
151121	03	FL280	GF	100	200	R7 Orbit 60°-50°
151246	03	END				
151358	04					R1 + 50°
151525	04	END				
151600		FL280	GF	350	500	
152100		FL319	GF	500	500	Reset integration time.
152239	R8	FL320	GF	500	500	
153803	END RUN	8		END		EX T + 16°C
running on				peltier	kept	temp stable + acceptable.

Flight Manager's Instrument Status Log

Flight No. **B** 141 Date: 19th November 2005

Instrument	Operated	Instrument	Operated
Navigation		**Cloud Physics**	
INU	**Y**	**Probes**	
XR5M GPS	**Y**	FFSSP	**Y**
Cruciform GPS	**N**	PCASP	**Y**
Satcom C	**Y**	2D-P	**Y**
Satcom H	**Y**	2D-C	Y
Thermometers		Cloudscope	**N**
De-Iced Temp	**Y**	SID 1	**Y**
Non De-Iced	**Y**	SID 2	**N**
Heimann	**Y**	HVPS	**N**
Hygrometers		CIP25	**N**
G. Eastern	**Y**	CIP100	**Y**
J. Williams	**Y**		
Nevzorov	**Y**		
TWC	**N**		
FWVS	**Y**	**Racks:**	
Radiometers		INC	**N**
Upper Clear	**Y**	CCN / CPC	**Y**
" Red	**Y**	CVI	**N**
" Silicon	**Y**		
" JO1D	**N**	**Aerosol**	
Lower Clear	Y	PSAP	**N**
" Red	**Y**	Nephelometer	**N**
" Silicon	**Y**	Filters	**N**
" JO1D	**N**	AMS	**N**
Large Radiometers			
TAFTS	**Y**		
MARSS	**Y**		
DEIMOS	**Y**	**Others:**	
ARIES	**Y**	NIR TDLAS	N
SWS	Y	2BT O3	N
Chemistry		VACC	N
Ozone	Y	PEROXIDE	N
SO2	Y	Formaldehyde	N
NOX	Y	ADA	Y
CO	N	CPI	Y
ORAC	N	NOxy	N
PAN	N	PTRMS	N
PERCA	N	Bag Sampling	N
WAS	N	Tube Sampling	N

Faults / Incidents Log

Flight No. B141
Date: 19th November 2005

Instruments

1. INU – No response from the serial link initially on the pre-flight. Reset INU, no difference. Reset INU and CBs, then okay.
2. TWC – not fitted
3. HORACE – FWVS raw data reading 65535. Log file shows "timeout or incomplete data". Data looks okay on FWVS pc.
4. HORACE – CPC display and raw data reading 0. Reset CPC at 12:52, no change.
5. Upper camera window – needs to be cleaned.
6. Printer – not printing out map plot from aft Core Console pcs, only bands of lines

Other Instruments' status
AVAPS – 2 Sondes launched, no problems
ARIES, SWS, MARSS, ADA, CPI, FWVS – Okay
DEIMOS – slightly suspect, need to check data
Cloud Physics – Okay except 2D-P & PCASP at high altitude
TAFTS – No long-wave data

Aircraft

1. De-Ice wings and tail pre-flight.
2. Wash-hand basin – cold tap button snapped off. (Water frozen for much of flight)

Satcom H Calls –

MISSING LOG SHEETS:

The following log sheets are not available for flight B141:

Log	Reason
Core Chemistry	pre flight only, unmanned operation on auto calibrate so no In Flight log
TAFTS	No log is ever taken for TAFTS
ADA/CPI	No log taken or no copy left with FAAM

VIDEO RECORDINGS:

3 x Upward Facing Cameras
3 x Downward Facing Cameras

Digital8 video recordings from this flight reside with :

Dr Jonathan P. Taylor

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